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# AGRICULTURAL ENGINEERING

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## CURRENT LITERATURE

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF AGRICULTURAL ENGINEERING

U. S. Department of Agriculture

Vol. 1, No. 3.

WASHINGTON, D. C.

October, 1931.

Aerologist. Vol. VII, No. 9. September, 1931.

Role of Air in Education, Past and Future. By J. Arthur Myers. p. 5-9, 44-5.

Aerology in the Cranberry Industry. By Samuel R. Lewis. p. 11-13, 36.

Cranberry harvesting scoop. Plan of typical cranberry field, drying apparatus.

Agricultural Engineering. Vol. 12, No. 9. September, 1931.

Place and Function of Land Reclamation in the Agricultural Program. By James A. King. p. 333-7.

Land Reclamation involves putting agricultural land to that use in which it will render largest possible benefits to both owner and general public--whether this be production of crops or furnishing of recreation--and increasing benefits to be obtained by proper use of that land to highest point commensurate with cost involved.

Water Control Progress in Florida. By Forrest D. Banning. p. 338.

Surface irrigation and drainage, "Mole" system of water control; open surface method, overhead spray irrigation.

Engineers' Responsibility to the State. By Anson Marston. p. 339-42.

In every part of our country there must be well rounded development, in which agriculture and mechanic arts develop side by side to fullest degree wisely practicable, supporting each other instead of antagonizing each other. Here is where agricultural engineer has great part to play in solving some of America's most vital problems.



Engineering Educational Standards. By L. W. Wallace. p. 343-5.

Each institution should make thorough study of territory it serves and predicate its major efforts upon needs of that territory. There is no sound reason why every technical school should teach same engineering courses. Each institution should major on problems peculiar to its area.

Agricultural Engineering Educational Standards. By H.B. Walker. p. 345-7.

Objective of Agricultural Engineering education is to develop leadership by encouraging higher efficiency, greater productive capacity and better operating practices among those engaged in production of raw products for food, shelter and clothing, through application and use of engineering principles in industry of agriculture. Aim of this objective is directed toward creating desire for, and capacity to enjoy, higher standards of living, better working conditions, adequate educational facilities and equitable social progress for those engaged in agricultural industries.

Owner's Opinion of Large-Scale Farms. By James Mills, Jr. p. 348-50.

Would we not have more contented farming community if our ten and twenty-acre farmers of today were interested in large farming venture through stock ownership and were insured continuous employment at definitely known wage, particularly so provided they at same time enjoyed ownership of home with three or four acres upon which they could produce their vegetable and dairy products, etc. Uncertainty of income which small grower now faces makes it almost impossible for him to live comfortably and plan ahead for future with any assurance of his plans being realized. Regardless of social complications which might result if my own conception of problem is incorrect, from business standpoint large operating unit unquestionably will ultimately be responsible for greatest share of our food production.

Some Engineering Phases of Fertilizer Application Experiments.

By G. A. Cumings. p. 351-2.

In further development of fertilizer distributors following points are among those to be considered in meeting requirements of uniform distribution at low rates of application, accurate control of delivery rates, durability and convenience: 1. Positive dispensing action with fertilizers of wide range of drillabilities. 2. Avoidance of high amplitude of cycles or impulses of delivery. 3. Elimination of minimization of effect of head of fertilizer and of inclination of distributor, on delivery rate.



4. Accuracy and refinement of dispensing parts. 5. Provision for comparatively small changes in delivery rate and suitable reference scale for adjustments. 6. Provision for ready determination of actual delivery rates. 7. Provision for ready emptying and cleaning. 8. Greater use of corrosion resisting metals. 9. In connection with planters, fertilizer distributing unit to be accepted as integral part of machine rather than as attachment.

Management of Large Farms. By R. L. Adams. p. 353-7.

Classified into four groups: (1) Large-sized family farms; (2) chain or group farming; (3) factory farms; and (4) managerial service.

Factors Influencing Power Demands of Electric-Motor-Driven Threshers. By Truman E. Hienton. p. 357-8.

Land Reclamation as Affecting Farm Machinery Application. By John Swenhardt. p. 359-60.

Several factors are involved in the reclamation of fields on old farms: (1) Size of farm as affected by high-valued crops grown, (2) nearness to points of consumption, (3) labor competition, (4) physical reclamation job, and (5) machinery adaptations.

In conclusion, we would suggest that two phases of perhaps equal importance need attention: 1. Development of equipment and method. 2. Promotion of idea that, as long as farmers as well as those dealing with farm folks have idea that many of our old farms are fully developed, progress will be slow; on other hand, if we agencies, both governmental and commercial could sell idea of complete field reclamation, we might expect more satisfactory progress. Conditions seem to indicate that such progress is not affected by continued existence or even increase in number of subsistence farmers.

Obsolescence of Farm Equipment: Editorial. p. 365.

Controlling factors in obsolescence of equipment are (1) its efficiency in competition with improved equipment for doing same work better or cheaper, (2) its adaptability for economic service, considering changes in product or processing which may eliminate it or reduce its efficiency below that of other machinery, (3) its relative efficiency under more stringent requirements of any kind, such as increased accuracy, and (4) the quantitative factor, or unit saving possible by change of equipment multiplied by number of units to be produced.



American Agriculturist. Vol. 128, No. 10. September 5, 1931.

Equipment That Saves Steps: It is not necessary to walk 1,188 miles doing chores. By D. Q. Grabill. p. 3, 10-11. Careful study made by Rural Economics Department of University of Ohio showed that Ohio farmers walked average of 99 miles month feeding and caring for their livestock.

American City. Vol. XLV. No. 3. September, 1931.

Saving Farm Land from Erosion with County Road Machinery.  
By Lewis A. Jones. p. 13

ASA Bulletin. No. 64. August, 1931.

Work of the ASA Sectional Committee on the Rating of Rivers.  
By N. C. Grover and W. G. Hoyt. p. 27-9.  
Scope of project defined as agreement as to basis for computing and units for expressing water-power resources for statistical use and for purpose of making comparisons between different rivers, river basins, regions, and countries, rules to be short, simple, and applicable to various conditions throughout world.

American Thresherman and Farm Equipment. Vol. XXXIV, No. 4. August, 1931.

Fall Plowing for Profit. By Archer P. Whallon. p. 5, 15.  
Land left in rough furrows will hold winter snows, absorb rains, work up quickly and not lose its fertility through weathering or erosion.

Care of Belting. By J. Grant Dent. p. 7-8.

Killing Weeds with Power. By F. W. Duffee. p. 10.

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. Vol. XXXIV, No. 5. Sept. 1931.

Machine vs. Hand Picking of Corn. By J.C. Patterson. p. 5, 11.  
Some acre costs by hand and machine are: Illinois--machine \$3.25; hand, \$4.95; Ohio--machine \$3.85; hand \$6.47. In Iowa machine picking was \$1.55 per acre. No figures are available on hand picking there by acre. Another factor which must be considered is thoroughness of the job which picker does as compared to hand labor. Survey of 57 farmers in Champaign county, Illinois, showed amounts left in field varying from 0.8 bushel of ear corn to 7.9 and from 0.6 bushel of shelled corn to 5.4 in 1929. Average was 3.7 bushels. In 1930 much of corn was down and average machine loss was 5.9 bushels. In hand picking average was 2.7 bushels in 1929 and 2.8 in 1928.



Gov. Roosevelt proposes State Control of Rural Housing. p.210.  
Commission on Rural Homes to determine to what extent and by what means state and its subdivisions may properly stimulate movement of city workers to rural homes. Commission would also determine what facilities may be furnished by public authority to assist those workers in getting right kind of homes in right locations, and to inquire what encouragement may be offered for movement of industries from urban centers to rural locations or establishment of new industries in such locations.

California Cultivator. Vol. LXXVII, No.6. August 8, 1931.

Why Not a Water Research Board. By Harold L. Green. p.107.  
This board, backed by statute and cooperating with oil operator on some mutually convenient basis, could study every water-saturated horizon penetrated by wells and describe in detail their thickness, porosity, area distribution, water content and analyze water.

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Vol. LXXVII, No.7. August 15, 1931.

Let's Put Our Waste Water to Work. By Jack Klein. p.131,143.  
52,116,480,000 gallons--of water are being discharged into ocean each year in form of sewage by cities of Southern California. Reclamation of this water is problem of foremost importance as it can safely be added to underground supply. Because this reclaimed water can be put to practical use for irrigation farm bureaus of southern counties have been among foremost in studying methods already in use.

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Vol. LXXVII, No.8. August 22, 1931.

Bureau of Agricultural Engineering. By Harry F. Blancy. p.155,163.

Excessive Irrigation Injurious. p.172.  
In wet or marshy fields remedy is paradoxically, to fight drouth by keeping fields drier, usually by drainage which will favor deeper rooting.

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Vol.LXXVII, No.9. August 29, 1931.

Cost of Irrigation Water. p.193.

Following summaries give range in cost of water for 1929, including interest on capital invested: For public utility water companies minimum annual cost of irrigation water per acre is 37 cents and maximum \$72.14. Cost per acre foot varies from 30 cents to \$34.85. Under mutual water companies lowest cost of water per acre is 72 cents and highest \$84.33. Cost per acre foot varies from 59 cents to \$41.37. For irrigation districts lowest cost of water per acre is 82 cents and highest \$83.90. Maximum cost per acre foot is \$116.45.



American Thresherman and Farm Equipment. Vol. XXXIV, No. 5. Sept. 1931.

(Cont'd)

Cutting Soybean Harvesting Costs. By C. A. VanDoren & W.L. Burlison.  
p. 6, 11.

Table gives comparison of combine with binder and thresher in harvesting soybeans, 1929.

Tractor Plowing Most Economical. By A. H. Gorbaz. p. 12.

For tractor to be more economical than horses to plow on mountain farms, following requirements are in order: First: Tractor must pull at least two, three or four-bottom plows. Second: Tractor must be used for other work than plowing, such as discing, cutting grain, and threshing, if possible, besides all kinds of other jobs. Third: Farm must be large enough to pay for use of a tractor. When foregoing requirements are met, advantages of tractor over horses are: Less man labor required in plowing and other work. All plowing is done more quickly, hence ground dries out less.

Annali dei Lavori Pubblici. Vol. LXIX, No. 6. July, 1931.

LeDighe di Ritenuta in Italia. Notizie generali e cenni sulle opere in corso al 1° aprile 1931 IX. Comunicazione Dell' Ing.

Angelo Rampazzi. p. 473-511.

(Storage dams in Italy: Notices on the constructions in progress and list of dams up to April 1, 1931)

Better Farm Equipment and Methods. Vol. 4, No. 1. September, 1931.

Work of Agricultural Engineer Reaches Farm Homes of Nation. p. 8-9, 33.

"Chief" McCrory outlines problems to be solved by New Bureau-- farm buildings and farm machinery to receive special study.

Soil Erosion Big Problem: Federal program stresses the need of well-planned terraces. p. 20.

It is estimated that 75 per cent of all land in cultivation in this country is subject to waste by erosion. In many localities entire depth topsoil and in some places part of subsoil has been washed off after 30 or 40 years of cultivation. When soil is removed, vastly inferior subsoil is left for farmers to operate on and thus once-fertile lands become for all practical purposes marginal or sterile.

Better Homes & Gardens. Vol. 10, No. 2. October, 1931.

Five Ways to Treat a Low Terrace. By Walter D. Popham. p. 34, 92.

A. The grass-covered slope. B. Combined wall and terrace.

C. The concrete retaining wall. D. Brick retaining wall.

E. Dry stone wall.

Brick & Clay Record. Vol. 79, No. 5. September 8, 1931.

Fire! Fire! Don't Worry, It's a Clay Tile House.. p. 204, 206.



Commerce. Vol. 28, No. 3. October, 1931.

Erosion and the Middle West's "Bald Farms" Part II. By C.G. Bates.  
p. 30-31, 56, 58.

Vast areas already abandoned and millions of acres more may go.  
How loess deposited over middle west for ages is permitted to  
wash away by single generation's heedlessness.

Commercial Standards Monthly. Vol. 8, No. 3. September, 1931.

Union of Socialist Soviet Republics 1931 Standardization Program:  
Program calls for reduction of costs and accelerated tempo in  
construction for the year. By V. Kisseley. p. 67-9.

Certifying the Insulation Jobs: Asbestos Bureau established along  
the "Certification Plan" of National Bureau of Standards. p. 74.

National Bureau of Standards and Its Cooperation with Industry:  
Governmental and nongovernmental organizations cooperate with  
Bureau unofficially, semiofficially, and officially. By A.S.  
McAllister. p. 81-3.

Constructor. Vol. 13, No. 9. September, 1931.

Two More Large Projects for the Southwest. p. 22-5.

Parker Aqueduct and All-American and Coachella Valley irriga-  
tion canals.

Country Gentleman. Vol. CI, No. 5. May, 1931.

Erosion: A campaign to check the wastage of our precious topsoil.  
By Hugh Hammond Bennett. p. 10-11, 100-101.

Domestic Engineering. Vol. 136, No. 4. August 22, 1931.

Overnight Cabin--An Opportunity for Plumbing. By R.M. Starbuck, Jr.  
p. 37-40.

Electrical World. Vol. 98, No. 11. September 12, 1931.

Senator Norris' Stand on Irrigation Plus Power. p. 446.

Receded from his position that power development be given  
equal consideration with irrigation in working out of plan  
of storing Platte River waters in connection with federal  
program of river flood control.

Home Lighting--an Unsaturated Market. By Earl A. Graham. p.464-6.



Electricity on the Farm. Vol. 4, No. 9. September, 1931.

Poultry House Lighting. By Geo. W. Kable. p. 9-12.

Main purpose of lighting is to stimulate production at time when prices are highest.

Keeping the Family in Hot Water. By E. R. Meacham. p. 13-16.

What can Electricity Do for the Dairy Farm? By Prof. L.J. Smith. p. 17-19.

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. Vol. 4, No. 10. October, 1931.

Ventilating a Northern Barn. By E. R. Meacham. p. 15-18.

Making the Farm Home Safe From Fire. By H. L. Boyer. p. 19-21, 24.

Total loss per year reaches staggering sum of over \$100,000,000, while toll in human lives mounts up to 3,200 in one year. Defective chimneys and flues start about 14 $\frac{1}{2}$ % of them; lightning, 10%; sparks on roof 8%; gasoline and petroleum products, 7 $\frac{1}{2}$ %; matches and smoking 6%; spontaneous ignition, 5%; stoves, furnaces and their pipes, 4%; hot ashes and coals including open-fires, 2%. Slightly more than one-third of all rural and farm fires are classified as originating from causes unknown. Less than 1% are attributed to incendiarism.

Engineering. Vol. CXXXII, No. 3421. August 7, 1931.

German Agricultural Machinery. By R. Borlase Matthews. p. 155-7.

Shutter-Weir on the Upper Seine. p. 166-8.

New weir is divided into two parts, one of which, having total width of 46.5m., serves as navigable pass, whilst other, to be used as simple overfall weir, is 64.5m. in width. Discharge over this can be varied by adjusting shutters, thus providing means for regulating up-stream water level.

Engineering Contractor. Vol. LXX, No. 9. September, 1931.

Confining a Stream Within a Reinforced-Concrete Culvert. p.240.

Engineering Journal. Vol. XIV, No. 8. August, 1931.

Corrosion of Metals. By Alfred Stansfield. p. 444-6.



Extending Hydrologic Knowledge: Editorial. p. 358.

Cellular Corewall Used in Silvan Dam, Australia: Type of wall similar to that developed in Mexico for a rockfill dam is employed in an earthfill dam in Australia. By Ian M. Sutherland. p. 377-8.

Letters to the Editor. Filter Sand and Effective Size: Letter from William Ralph Baldwin-Wiseman. p. 379.  
Qualities of any required sand may be specified by approximations, within certain limits, of: (1) aggregate surface of grains per unit volume; (2) percentage porosity; and (3) retentiveness of surface of grains by thickness of ideal film.

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. Vol. 107, No. 11. September 10, 1931.

Graphical Analysis of a Dual-Flow Water Supply System. By Grant K. Palsgrove. p. 422-3.

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. Vol. 107, No. 12. September 17, 1931.

Strength of Structural Welds: Five-year research program of American Bureau of Welding in which 2,500 specimens involving 55 forms of joints were welded by 39 fabricators and tested in 24 laboratories justifies present accepted working stresses and indicates that satisfactory uniformity may be expected in the strength of welds made commercially by any reputable fabricator. By H. M. Priest. p. 436-40.

Brick: A Critical Analysis of Practices and Trends. By O. Fred Rost. p. 441-3.

Molds Successfully Deodorize Undigested Sewage Sludge. By C.G. Wigley. p. 448.

Determining Clamshell Bucket Characteristics: Proper size for required output or capacities of various sizes for digging and rehandling of all materials can be determined from charts and tables. By Philip T. Robin. p. 454-7.  
Table gives bucket factors for various materials.

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. Vol. 107, No. 13. September 24, 1931.

Great Hydraulic Engineers of New England's Classic Period: Men who laid the foundation of the water supply and power arts in America, from Loammi Baldwin and Samuel Storow to Herschel and Freeman. By Charles W. Sherman. p. 475-9.

Tunnel Driving at Cobble Mountain: Comparison of shooting and mucking methods and costs of two tunnels on Springfield's new water supply and hydro-electric project. By Harry H. Hatch. p. 507-11.



Experiment Station Record. Vol. 65, No. 5. October, 1931.

Quarter Centennial of the American Society of Agricultural Engineers. p. 401-5.

Farm and Ranch. Vol. 50, No. 32. August 8, 1931.

Arkansas Prairie Becoming Rice Center: Trick is being turned by crop rotation and electricity. By Charles M. Wilson. p. 3, 11.

Farm Implement News. Vol. 52, No. 38. September 17, 1931.

N. D. Farm Machine Law Upheld: Supreme Court holds Act is exercise of Police Power. p. 11.  
Court also gave opinion of special interest to implement industry in regard to what constitutes reasonable time for rescinding contract in case of a machine with which buyer has not had experience. In this case machine was combine.

\_\_\_\_\_. Vol. 52, No. 39. September 24, 1931.

Illinois Leads in Tractor Count. p. 9.

Farm Journal. Vol. LV, No. 10. October, 1931.

Farm Implement "Imps" By Grif McKay. p. 13, 24.  
Neglect of machinery results in large loss; not only loss of life of machinery, but loss of power and of operator's time, both of which are worth saving.

Fuels and Furnaces. Vol. IX, No. 9. September, 1931.

National Metal Congress to be Held in Boston, September 21-25. p. 1027-30. Gives program.

Génie Rural & Grande Revue Agricole. Vol. 24, No. 4. July, 1931.

Les Progrès de la Motoculture Aux Colonies. By M. Lecoœur. p. 21-4.  
(Progress of power cultivation in the colonies.)

L'Utilisation du Matériel Français au Maroc. By M. Crépin. p. 25-31.  
(Use of French material in Morocco. How to develop their use.)

Heating and Ventilating. Vol. XXVIII, No. 9. September, 1931.

Selected Bibliography--Office Building Heating, Ventilating and Cooling, Since January 1, 1923. p. 89-90.  
Includes electric heating, gas heating, oil heating, ventilating and air conditioning.



How to Design the Piping for a Combined Forced and Gravity Circulation Reversed Return Hot Water Heating System.

By F. E. Giesecke. p. 458-64.

By balancing friction losses through various circuits of hot water heating system, proper amount of hot water will be supplied to each radiator and success of installation assured. Frequently, orifices are used to assist in this procedure; selection of proper pipe sizes is, of course, of paramount importance.

Introduction to Drying. By Malcolm Tomlinson. p. 473-8.

Discusses differences between drying, vacuum drying, low humidity drying, evaporation, distillation, vaporization, dehumidification, dehydration, absorption, adsorption, centrifugal drying, tempering and baking.

Effective Temperature--What It Means. By Edward F. Adolph. p. 483-6.

Flow of Steam Through Orifices Into "Radiators". By Sterling S. Sanford and Carl B. Sprenger. p. 505-12.

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. Vol. 3, No. 8. August, 1931.

Design Controls Cost of Heating: Buildings should be planned to allow heating economies. By Sterling S. Sanford. p. 637-41.

Bursting Stress in High Pressure Piping: Fundamental formulas of design. By Harvey A. Wagner. p. 658-61.

When theoretically correct results are desired, it is writer's belief that Clavarino's formula should be used for designing piping, where closed end conditions prevail. Article compares Birnie and Clavarino formulas and shows their differences in application.

Air Conditioning for Egg Storage: A complex problem. By C.E. Baker. p. 664-5.

Hoard's Dairyman. Vol. 76, No. 14. July 25, 1931.

Grinding Feed by Electricity: Discusses essentials in grinding grain at low cost by use of electric power. By E.T. Leavitt. p. 515.

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. Vol. 76, No. 16. August 25, 1931.

Cooling Milk on the Farm: Most effective and economical methods of cooling milk as found a practical experience on farms at Lake Geneva. By R. S. Poulter. p. 569, 592.

Electricity on a Small Farm: Proper use of electric service proves satisfactory and profitable. By R.A. Walter. p.572-594.

Crib Silo. By R. L. Patty. p. 577.

Crib or slat silo is made out of ordinary picket pannels that are used for round corn cribs or that are used for snow fences. In most instances silo is built right on top of ground and most common height for them is either four or five panels high. It is generally lined with paper of very tough quality and is held upright by means of few large posts set around silo at regular intervals. Crib silo has this advantage, after its use is discontinued it can be readily cleared out of way and cribbing can be used for other purposes. Trench silo will keep silage in shape to be fed late in winter better than crib silo. Deep pit silo is better than any of inexpensive silos, and if ground water does not bother will keep silage as good as any silo.

Ice & Cold Storage. Vol. XXXIV, No. 401. August, 1931.

Wet Air Cooler. By J. H. Dannies. p. 200-3.

Implement and Machinery Review. Vol. 57, No.677. September 1, 1931.

Testing of Implements and Machinery: Editorial. p. 503.

What the Testing has Revealed: Editorial. p. 503-4.

Future of Testing: Editorial. p. 504.

Implement & Tractor Trade Journal. Vol. XLVI, No. 19. September 12, 1931.

Let the High Cost of Areas Reduce. p. 11.

Saving Money on the Corn Harvest: College authorities and farmers find mechanical power costs assure profits even with market prices at the present levels. p. 12

Hammer Mill is Added by Case: Automatic volume and speed controlled feeder is feature of new machine which also is fitted with speed jack. p. 33-4.

Index. Vol. XI, No. 9. September, 1931.

Increased Efficiency in Agriculture. p. 196-201.

Beginning of farm mechanization. Rapid increase in use of farm machinery (1917-1930). Farm electrification. Greater use of fertilizers. Trend toward larger farms. Labor saving due to farm machinery.



Journal of the Ministry of Agriculture. Vol. XXXVIII, No. 4. July, 1931.

Soil Surveys. By Prof G.W. Robinson, University College of North Wales, Bangor. p. 379-86.

Journal of the Western Society of Engineers. Vol. XXXVI, No. 4. August, 1931.

Developments in High Steam Pressures and Temperatures. By D.S. Jacobus. p. 227-52.

Bird's-eye picture of new types of boilers that have been built in last seven years. Pressures have nearly doubled, temperatures have been increased, and efficiency improved until now these large installations regularly convert 85% or more of heat energy in coal into steam.

Magazine of Wall Street. Vol. 48, No. 9. August 22, 1931.

Crop Abundance Brings New Problems to Agriculture and Business. By C. S. Burton. p. 572-5, 617.

Marchands de Machines agricoles. Vol. 7, No. 16. August 20, 1931.

Machine à planter automatiquement les pommes de terre sur deux rangs. p. 39, 41, 43.

(Machine for planting potatoes automatically in two rows.)

Missouri Ruralist. Vol. 73, No. 4. August 15, 1931.

Looking Down on Erosion Damage: One farm problem that's plain from a mile in the air. By Clarence Cannon. p. 3, 21.

Down the River Goes Your Farm, But You Can Pen It Up at Home With Terraces. By Frank A. Meckel. p. 6, 18, 21.

Montana Farmer. Vol. 18, No. 24. August 15, 1931.

Water Utilization Means Millions to Montana Farmers, Stockmen. By H. L. Lantz. p. 5.

Pumping Water for Irrigation, Selection of Power for the Power Plant. p. 10.

\_\_\_\_\_. Vol. 19, No. 1. September 1, 1931.

1930 Production on Federal Reclamation Projects. p. 9.

In 1930 Huntley project with 32,540 acres of irrigable land, irrigated and cropped 23,488 acres producing crop valued at \$1,110,523, or average of \$47.28 per acre.

Lower Yellowstone project, irrigated and cropped 28,681 acres out of total of 47,450 irrigable acres, and from this took crop valued at \$957,756 or average of \$33.39 per acre.

Three divisions of Milk river project in northern Montana, with total irrigable acreage of 134,425, irrigated

Montana Farmer. Vol. 19, No. 1. September 1, 1931. (Cont'd)

49,021 acres and cropped 48,039 from which was produced crop valued at \$959,385, average of \$19.97 per acre. Of this crop Malta division gave \$290,343, or \$17.44 per acre; Glasgow division gave \$71,577, or \$13.31 per acre; and Chinook division gave \$597,565, or \$22.97 per acre. Sun river project in north-central Montana, with 55,875 irrigable acres, irrigated and cropped 33,274 acres which produced \$442,918, or \$13.31 per acre. Of two divisions of this project Fort Shaw section produced \$133,820, or \$18.24 per acre, and Greenfields and Big Coulee division produced \$309,098, or \$11.91 per acre.

Nebraska Farmer. Vol. 73, No. 37. September 12, 1931.

Tips on Terracing. By Ivan D. Wood. p.3-4.

Trench Silos Are Popular. Provide a good means of saving feed from damaged corn. p. 5

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Vol. 73, No. 38. September 19, 1931.

Water--One of Nebraska's Greatest Resources. By Henry W. Biedermann. p. 4.

New Jersey Agriculture. Vol. XIII, No. 10. October, 1931.

Milk Houses. By W. C. Krueger. p. 12-13.  
Plans for milk house with insulated tank.

New Reclamation Era. Vol. 22, No. 9. September, 1931.

Silt Costs Imperial Valley \$1,400,000 Yearly. p. 190-1.

Northwest Farm Equipment Journal. Vol. XLV, No. 9. September, 1931.

Power Farming is Not a Menace to the Nation: Editorial. p.11-12.  
It simply means applying of well proven principles of industry to farm, doing of things more cheaply and better than they were done before.

Pickers Greatly Lower Corn Harvesting Costs. By E.T. Leavitt.  
p. 24

Fighting Weeds With Power a Success. By E.T. Leavitt. p. 26



Welding an Ice-Freezing Tank Without Distortion: Practical pointers on the arc-welding of freezing tanks and other large areas with a minimum of distortion and that where least harmful. By I. E. Scott. p. 352-3.

Standard Boiler Water Condition: The author proposes a standard boiler water containing four grains per gallon of caustic alkalinity and eight grains of non-caustic alkalinity. This is to be accompanied by a blowdown equalling one-fifth of the make-up. By J.B. Swift. p. 363-4.

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Vol. 74, No. 11. September 15, 1931.

Specifications for Selecting Pumping Equipment. By R.H. Parrish. p. 389.

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Vol. 74, No. 12. September 22, 1931.

Quick Defrosting of Refrigerator Coils. By D.J. Allison. p. 431.

Hot ammonia gas sent through coils. By this means as much as 3,500 sq.ft. of freezing apparatus could be cleared of frost in less than half hour. Temperature of storage room would go up perhaps five or six degrees but loss would be made up quickly when normal operation was resumed.

Public Roads. Vol. 12, No. 7. September, 1931.

Soil Profile and the Subgrade Survey. By W. I. Watkins and Henry Aaron. p. 181-194.

Quarterly Bulletin. Vol. XIV, No. 1. August, 1931. Mich.Agr.Expt.Sta.

Fertilizing Heavy Soils Increases Alfalfa Yields: Continuous production of this legume reduces available supply of phosphorous and potassium. By R. L. Cook. p. 3-5.

Efficiency of Surface Milk Coolers Tested: Comparison of different types of equipment shows variations in temperature reductions. By G. Malcolm Trout. p. 6-9.

Method to Tell Power Stream Will Furnish: Temporary Weir Dam Permits Measurement of Water and Gives Data to Compute Horsepower. By W. H. Sheldon. p. 16-19.

Classification of Water Soils is Proposed: Nature of water and beds of lakes, streams, and marshes is of economic importance. By J. O. Veatch. p. 20-3.

Using the Harvester Combine for Navy Beans: May be possible to reduce per acre cost of operating this machine in Michigan. By E. C. Sarve. p. 24-7.

Refrigerating Engineering. Vol. 22, No. 2. August, 1931.

Use of Paper as Refrigerator Insulation. By J.L. Knight. p. 88-9, 105, 120.

Carbon Dioxide and Its Solidification. By Charles O. Deuvel, Jr. p. 90-4.

Gas Makes Its Entry Into the House Cooling and Summer Air Conditioning Field. By E. D. Milener. p. 106-9.  
Reviewed by Editor.

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Vol. 22, No. 3. September, 1931.

Refrigeration in Air Conditioning for Comfort. By Maurice Olchhoff. p. 163-5, 172, 194.

Heat Content of Frozen Sodium and Calcium Brines. By R.S. Jessup. p. 166-9.

Present Extent of the Frozen Foods Business. p. 170-2, ..  
Information has been collected from number of firms now engaged in quick freezing, and this survey is offered as attempt to give some idea of activities now going on. Facts presented represent only limited proportion of frozen foods concerns now in operation.

Boiling Points of Water in Brine Solutions. p. 176.  
Table gives vapor pressure above solutions of calcium chloride.

Requirements for Dichloro-Difluoromethane: Standard ton study. By F.R. Bichowsky. p. 177, 186.

Rural New-Yorker. Vol. XC, No. 5177. September 12, 1931.

Farm Barns for the North Country. By Robert H. Smith. p. 946-7.



Science News Letter. Vol. XX, No. 541. August 22, 1931.

McCormick Reaper "A Classic Invention": The centenary of the reaper is celebrated this year in the fields where it displaced cave-man agriculture. p. 118-19, 124.

Scientific American. Vol. 145, No. 1. July, 1931.

Quick-Freezing Solves Food Problems. By D. H. Killeffer. p. 16-18.

Soil Science. Vol. XXXII, No. 3. September, 1931.

Alcohol Method for Determining Moisture Content of Soils. By George Bouyoucos. p. 173-9.

Moisture Equivalent as a Measure of the Field Capacity of Soils. By F.J. Veihmeyer and A.H. Hendrickson. p. 181-93.

Effect of Drying and Ultra-Violet Light on Soils. By A.E. Mortonson and F. L. Duley. p. 195-8.

Southern Agriculturist. Vol. LXI, No. 8. August, 1931.

Handling Big Teams. By D. W. Teare. p. 9, 29.

Successful Farming. Vol. XXIX, No. 10. October, 1931.

Should I Own a Truck? That Depends. By Dr. V.B. Hart. p. 7, 80-1.

When Winter Winds Blow: A good heating system is appreciated. By. A. C. Willard. p. 15, 26.

Basic factors affecting comfort. Humidity and its problems. Cold wall surface temperatures. Air temperatures at the "Comfort Line".

Sugar Beet. Vol. 8, Nos. 9 and 10. September-October, 1931.

Sugar Beet Harvest. p. 3-16.

Sugar Bulletin. Vol. 9, No. 22. August 15, 1931.

Sugar Cane Harvesting Methods and Cost, 1931. By G.H. Rouss. p. 1-3.

Wallaces' Farmer. Vol. 56, No. 36. September 5, 1931.

Working Horses With a Multi-Hitch. By Harry D. Linn. p. 7, 19.

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Vol. 56, No. 39. September 26, 1931.

Fixing the Hen House for Cold Days. By Jay Whitson. p. 3, 17.

Water Works and Sewerage. Vol. LXXVIII, No. 2. September 1931.

How to Make a Rain Gage. p. 249.

Small copper tank 15.2 in. square and several inches deep is tank in which rain is caught. One inch depth in this tank is equal to 231 cu. in. (1 gal.) Drain in this tank is connected by tube to bottle located in laboratory. This bottle should have capacity of about 2 gal. It is graduated by placing measured quantities of water in it so as to give readings in decimal fractions of gallon which represent equivalent depth in fractions of inch of rain.

Wisconsin Agriculturist and Farmer. Vol. LVIII, No. 35. August 29, 1931.

Silo Filling Conducted With Economy: Labor charge represents 40 per cent of silage cost. p.3.

Costs averaged \$2 per ton. Lowest figure reported was \$1.42; highest \$2.62 per ton.



Library has just received the following publications:

- Adaptability of the combine to Indiana farms, By I.D.Mayer  
and J.C.Bottum. 1931. 59p. (Purdue univ.  
Agr. expt. sta. Bulletin 349.)
- Belt drives with cast-iron pulleys and paper pulleys. By  
C.A.Norman and G.N.Moffat. 1931. 20p. (Ohio,  
Eng. Expt. Sta. Bulletin no.62.)
- Better living--in home and community. By E.L.Kirkpatrick.  
1931. 42p. (Wisconsin. College of Agriculture.  
Extension service. Circular 247.)
- Brick brooders. By G.I.Johnson. 1931. 4p. (Georgia.  
State college of Agriculture. Extension division. Circular  
167.)
- Care, use, and economic value of ~~farm~~ manure. By W.L.Powers  
and C.V.Ruzek. 1931. 15p. (Oregon. Agr. Expt.  
Sta. Circular 105.)
- Constant flow characteristic of the plane orifice in proximity  
to side walls. By Charles William Harris. 1931. 18p.  
(Washington. Eng. Expt. Sta. Bulletin no.56.)
- Cost and utilization of ~~farm~~ machinery. By John R. Fain and  
W.A.Minor, Jr. 1931. 32p. (Georgia. State  
college of agriculture. Extension division. Vol.XX, No.407.)
- Department of agricultural engineering. By A.L.Teodoro.  
Reprint from The Philippine Agriculturist. Vol.18. October  
1929. p.295-300.
- Design of gas burners for domestic use. 1931. 25p.  
(Circular of the Bureau of Standards, No.394.)
- Discharge over side weirs with and without baffles. By Richard  
G.Tyler, John A. Carollo and Norman A. Steyskal. 1929.  
118-130p. (Massachusetts Institute of Technology.  
Dept. of Civil and Sanitary Engineering. Serial no.12.)  
Reprinted from Journal of Boston Society of Civil Engineers.  
Vol. XVI, No.3. March 1929.
- Electricity for poultry raising. By H.E.Lacy. 1930. 24p.  
(Georgia. State college of Agriculture. Extension division.  
Bulletin 391.)
- Farm electric milk refrigeration. By John E. Nicholas. 1931.  
39p. (Penn. Agr. Expt. Sta. Bulletin 267.)



The Library has just received the following publications: (Cont'd)

- Farm milk house. By E.H.Parfitt and G.O.Hill. 1931. 4p.  
(Purdue univ. Dept. of Agricultural Extension. Leaflet 155.)
- Farm sewage disposal. By Paul R. Hoff and H.J.Young. 1931. 14p.  
(Univ. of Nebraska. Agricultural Extension Service. Extension circular 703.)
- Farm terracing. By C.E.Ramser. 1931. 22p. (U.S. Dept. of Agriculture. Farmers' bulletin no.1669.)
- Floods. By F.G.Switzer and H.G.Miller. 1929. 12p.  
(Cornell univ. Eng. Expt. Sta. Bulletin no.13.)
- Fool-proof poultry house. 1931. 35p. (Missouri State Poultry Expt. Sta. Bulletin 38.)
- Good practice in construction. By Philip G. Knobloch. N.Y., Pencil Points press, Inc., 1931. 114 plates.
- Harvesting the corn crop in Illinois: An economic study of methods and relative costs. By P.E.Johnston and K.H.Myers. 1931. 405p. (Illinois. Agr. Expt. Sta. Bulletin 373.)
- House framing details. National Lumber Manufacturers Assoc. 3d edition. 1929. 24 plates.
- Hydraulic ram. By Howard Matson. 1931. 4p.  
(Univ. of Kentucky. College of Agriculture. Extension division. Circular no.246.)
- Improving garden soils. By H.R.Cox. 1931. 8p.  
(N.J. Agr. Expt. Sta. Extension bulletin 90.)
- Information for applicants for permits for construction or alteration of encroachments on streams, bridges, culverts, walls, fills and other structures. 1931. 13p. (N.J. State Water Policy Commission.)
- Land utilization in a southeastern Ohio county. By J.H. Sitterley, H.R.Moore and J.I.Falconer. 1931. 38p. (Ohio. Agr. Expt. Sta. Bulletin 485.)
- Mathematics of engineering. By Ralph E.Root. Baltimore, Williams & Wilkins company, 1927. 540p.



The Library has just received the following publications: (Cont'd)

Message of the Governor to the people of California dealing with their water problem. Sacramento, 1931. 53p.

Minutes. Eighth annual meeting. Committee on the Relation of Electricity to Agriculture. Chicago, Illinois. 1931. 9p. mimeographed.

Missouri type milk houses. By M.J.Rogan and R.W.Oberlin. 1931. 12p. (Missouri. Agricultural Extension Service. Circular 277.)

New Jersey brooder house or small laying house. By J.C. Taylor and E.R.Gross. 1931. 4p. (N.J. Agr. Expt. Sta. Hints to poultrymen. Vol. 19, no.5.)

1931 supplement to book of A.S.T.M. Standards. Pub. by American Society for Testing Materials. 1931. 144p

Observations on the refrigeration of some Illinois fruits in transit. By J.W.Lloyd and H.M.Newell. 1929. 511-544p. (Illinois. Agr. Expt. Sta. Bulletin 334.)

Operating water pumps with electric power. By Truman E. Hinton. 1931. 4p. (Purdue university. Agr. Expt. Sta. Circular no.184.)

Flowing as a control measure for the European corn borer in western New York. By H.N.Bartley and L.B.Scott. 1931. 28p. (U.S.Dept. of Agriculture. Circular no.165.)

Progress in agricultural research. By F.B.Mumford and S.B. Shirky. 1931. 107p. (Missouri. Agr. Expt. Sta. Bulletin no.300.)

Questions on home sanitation to make you think. By Virginia P. Moore. 1931. 7p. (Home Demonstration Division. Extension Service. Florida state college for women. Circular no.987.)

Rainfall and stream run-off in southern California since 1769. By H.B.Lynch. 1931. 31p. (Metropolitan water district of Southern California. Los Angeles, California.)

Report on experiments on model culverts made with Hume pipes. By C.G.Hawes and H.S.Kahal. With appendix containing note on use of Hume pipes for irrigation purposes, based on notes by C.C.Inglis. 1929. 10p. (India. Public works dept. Technical paper no.27.)



The Library has just received the following publications: (Cont'd)

Report on irrigation districts in California for the year 1930.  
1931. 80p. (California. Division of water resources.  
Bulletin no.21-B.)

Rural community fire departments. By W.C.Nason. 1931. 46p.  
(U.S.Dept. of Agriculture. Farmers' bulletin no.1667.)

Selected papers. Proceedings of the Sixth annual conference  
on water purification. Edited by E.S.Tisdale and L.V.  
Carpenter. 1931. 145p. (West Virginia.  
Eng. Expt. Sta. Technical bulletin no.4.)

Septic tanks for sewage disposal. By Earl G. Welch and James  
D. Kelley. 1931. 21p. (Kentucky. College  
of Agriculture. Extension division. Circular no.131  
(Revised))

Stages of the Mississippi river and of its principal  
tributaries, for 1930. Compiled at the Office of the  
President, Mississippi river commission, Vicksburg, Miss.  
1931. 87p. (War department. Corps of Engineers,  
U.S.Army.)

Study of methods for cleaning milking machines. 1931.  
24p. (Purdue university. Agr. Expt. Sta. Bulletin  
no.348.)

Survey of irrigation practices in the rice industry of  
Calauan, Laguna. By A.L.Teodoro and Eusebio Bataclan.  
July 1931. (Reprinted from the Philippine  
Agriculturist 20:93-100.)

Tables and charts of specific gravity and hardness for use  
in the determination of minerals. By Joseph L.Rosenholtz  
and Dudley T.Smith. 1931. 83p. (Rensselaer  
Polytechnic Institute. Engineering and Science series  
no.34.)

Temporary silos. By G.E.Martin. 1931. 11p.  
(Missouri. Agricultural Extension service. Circular 281)

Terracing farm land in Georgia. By O.E.Hughes. 1930. 22p.  
(Georgia. State college of Agriculture. Extension division.  
Bulletin 394.)

Terracing to reduce erosion. By A.W.Clyde. 1931. 8p.  
(Iowa state college of agriculture and mechanic arts.  
Extension service. Extension bulletin no.172.)

Year's progress in solving farm problems of Illinois:  
Annual report of H.W.Mumford. 1931. 304p.  
(Illinois. Agr. Expt. sta.)